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# Tailoring the structure and the properties of pyrolysed carbon electrodes

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## Introduction

- Carbon 3D micro and nano electrodes can be fabricated using a carbon MEMS technique in a very simple high-yield process. Although not all polymers can be used as carbon precursors, carbonizable polymers are typically much less expensive than metals used in thin film metal electrode fabrication.
- Possibility to explore many polymers to tune the physical, microstructural, and electrical/electrochemical properties of carbon electrodes in different fields.

## Aim

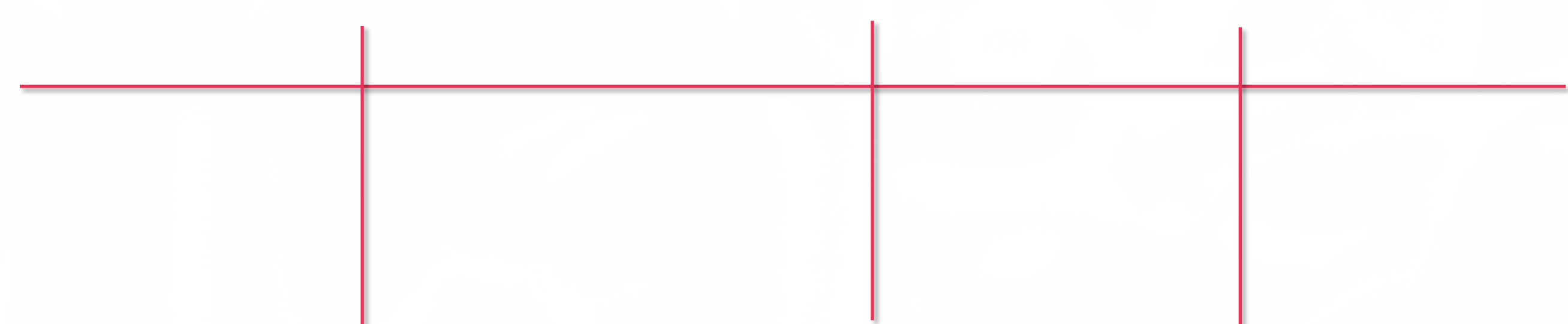
Here we present a study with pyrolysed carbon derived from the photoresist SU-8, polystyrene and polystyrene-blockpolydimethylsiloxane copolymers to evaluate them as electrode material.

## Fabrication of pyrolysed carbon electrodes



## Thermal Gravimetric Analysis

## X-Ray Photoelectron Spectroscopy



## Raman Spectroscopy



## Determination of the standard rate constant for electron transfer

Standard rate constant for electron transfer ( $k^0$ ) values calculated from the experimental  $\Delta E_p$  of the CVs obtained at scan rate of  $10 \text{ mV s}^{-1}$ .

